

<b><u>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</u></b>	<b><u>PAGES</u></b>	<b><u>PAGE</u></b>
	8	1
<b><u>ENGINEERING AND COMPLIANCE DIVISION</u></b>	<b><u>APPLICATION NO.</u></b>	<b><u>DATE</u></b>
	503614	2/9/10
<b><u>APPLICATION PROCESSING AND CALCULATIONS</u></b>	<b><u>ENGINEER</u></b>	<b><u>CHECK BY</u></b>
	DJG	

**OWNER/OPERATOR:**

ENGINEERED POLYMER SOLUTIONS, INC  
5501 EAST SLAUSON AVENUE  
LOS ANGELES, CA 90040

**EQUIPMENT LOCATION:**

SAME AS ABOVE

**PERMIT TO OPERATE**

**APPLICATION NO. 503614**

**CHANGE OF CONDITION NO. 4 (PERMIT NO. G6694)**

**BY THE ADDITION OF:**

THE QUANTITY OF MATERIAL PROCESSED IN THIS EQUIPMENT SHALL NOT EXCEED **600,000** GALLONS IN ANY CALENDAR YEAR OR **100,000** GALLONS IN ANY ONE CALENDAR MONTH.

**BY THE REMOVAL OF:**

THE QUANTITY OF MATERIAL PROCESSED IN THIS EQUIPMENT SHALL NOT EXCEED **300,000** GALLONS IN ANY CALENDAR YEAR OR **25,000** GALLONS IN ANY ONE CALENDAR MONTH.

**CHANGE OF CONDITION NO. 5 (PERMIT NO. G6694)**

**BY THE ADDITION OF:**

THIS TANK CAN ONLY STORE URETHANE MODIFIED ALKYD RESIN PRODUCT, ITS SOLVENT CONCENTRATION SHALL NOT EXCEED **55** PERCENT BY WEIGHT.

**BY THE REMOVAL OF:**

THIS TANK CAN ONLY STORE URETHANE MODIFIED ALKYD RESIN PRODUCT, ITS SOLVENT CONCENTRATION SHALL NOT EXCEED **50** PERCENT BY WEIGHT.

**APPLICATION NO. 499657**

**TITLE V PERMIT REVISION**

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

**PAGES**

**PAGE**

8

2

**ENGINEERING AND COMPLIANCE DIVISION**

**APPLICATION NO.**

**DATE**

503614

2/9/10

**APPLICATION PROCESSING AND CALCULATIONS**

**ENGINEER**

**CHECK BY**

DJG

## **PERMIT TO OPERATE**

**A/N 503614**

### **Equipment Description:**

STORAGE TANK, T-904, FIXED ROOF, 10'-0" DIA. X 12'-0", 6,715 GALLONS CAPACITY, WITH A 5 H.P. AGITATOR AND INTERNAL HEATING COILS.

### **Conditions:**

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
3. MATERIALS USED AT THIS EQUIPMENT SHALL NOT CONTAIN ANY OF THE COMPOUNDS IDENTIFIED AS TOXIC AIR CONTAMINANTS IN RULE 1401 AS AMENDED ON MARCH 7, 2008.
4. THE QUANTITY OF MATERIAL PROCESSED IN THIS EQUIPMENT SHALL NOT EXCEED **600,000** GALLONS IN ANY CALENDAR YEAR OR **100,000** GALLONS IN ANY ONE CALENDAR MONTH.
5. THIS TANK CAN ONLY STORE URETHANE MODIFIED ALKYD RESIN PRODUCT, ITS SOLVENT CONCENTRATION SHALL NOT EXCEED **55** PERCENT BY WEIGHT.
6. A TEMPERATURE GAUGE SHALL BE INSTALLED TO MONITOR THE TEMPERATURE OF MATERIALS STORED IN THIS TANK.
7. THE TANK TEMPERATURE SHALL NOT EXCEED 160 DEGREES F WHEN TRANSFERING MATERIAL TO A DELIVERY TRUCK.
8. THE TOTAL HOURS FOR HEATING THIS TANK SHALL NOT EXCEED 87 HOURS IN ANY ONE CALENDAR MONTH.

### **Periodic Monitoring**

1. THE OPERATOR SHALL KEEP RECORDS, IN A MANNER APPROVED BY THE DISTRICT, FOR THE FOLLOWING PARAMETERS OR ITEMS:
  - i. TEMPERATURE OF THE MATERIAL STORED IN THE TANK.
  - ii. CONDITION NO.7.
  - iii. HOURS FOR HEATING MATERIAL IN THE TANK.
  - iv. CONDITION NO. 8.

<b><u>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</u></b>	<b><u>PAGES</u></b> 8	<b><u>PAGE</u></b> 3
<b><u>ENGINEERING AND COMPLIANCE DIVISION</u></b>	<b><u>APPLICATION NO.</u></b> 503614	<b><u>DATE</u></b> 2/9/10
<b><u>APPLICATION PROCESSING AND CALCULATIONS</u></b>	<b><u>ENGINEER</u></b> DJG	<b><u>CHECK BY</u></b>

## **BACKGROUND:**

Engineered Polymer Solutions (EPS) is a facility engaged in manufacturing resins of polyurethane, alkyd, and unsaturated polyesters for paints and coatings. EPS is a Title V company but is not in the RECLAIM program. EPS received their Title V Permit in January 2009. EPS stores a variety of raw materials and finished goods in fixed roof storage tanks, ranging in size from 4,000 gallons to 25,000 gallons.

Engineered Polymer Solutions Inc. has submitted an application for the following reasons shown below.

**Application No. 503614**      Change of Conditions of Storage Tank T-904. The company is requesting to change the operational parameters of Condition No. 4 and Condition No. 5. The changes involve increases in the monthly and yearly throughput of stored material and an increase of the VOC concentration of the stored material.

For normal operation which includes cyclical operation parameters EPS has determined that their current monthly and yearly throughput of this storage tank will not meet their highest monthly and yearly demand requirement respectively. Therefore, the company has requested an increase in these two parameters for this storage tank. In addition, the company has made a review of their currently stored material (AJ0681P) and found that this materials based on various Material Safety Data Sheets (MSDS), that the mineral spirit content can vary as much as plus or minus 5% of the actual value in the MSDS. Therefore, the company is requesting to increase the VOC concentration of the material in the storage tank to safeguard against any formulation errors if a sample is ever taken from the tank and tested for compliance with the VOC concentration condition. The company will continue to use material that indicate a VOC concentration of 50% but will be protected if a material is tested and indicates a VOC concentration level greater than the 50% indicated on the MSDS.

The proposed changes will increase the working and breathing VOC loss from the storage tank. The VOC emission increase will be determined in the Calculation Section of this evaluation.

**Rule 301 fees:** The filing fee for each above application is summarized below:

Application No. 503614 –	\$1,287.22
50% Expedited Permit Processing	\$643.61
Application No. 504012 - Title V Permit Revision	\$843.80
<b>TOTAL FEES PAID</b>	<b>\$2,774.63</b>

## **PROCESS DESCRIPTION:**

The manufacturing of urethane, alkyd, and polyester resins is performed in a batch process. Normally, reactions take place between polyhydric alcohols and polybasic acids at a temperature of 450°F. The reactor is heated by a gas fired heater. The vapors and steam produced are passed through a packed column where they are partially condensed and then put through a water-cooled condenser. The condensate returns through a seal leg to a decanter where the water and solvents are settled by differential settling. The solvent is returned to the reactor or is pumped as reflux to the packed column. The reaction cycle normally takes 12 to 16 hours.

<b><u>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</u></b>	<b><u>PAGES</u></b>	<b><u>PAGE</u></b>
	8	4
<b><u>ENGINEERING AND COMPLIANCE DIVISION</u></b>	<b><u>APPLICATION NO.</u></b>	<b><u>DATE</u></b>
	503614	2/9/10
<b><u>APPLICATION PROCESSING AND CALCULATIONS</u></b>	<b><u>ENGINEER</u></b>	<b><u>CHECK BY</u></b>
	DJG	

When the reaction is completed, the hot urethanes/alkyds and polyesters are transferred to a thin down vessel filled with a solvent of proper composition. In the thin down tank, the resins are thinned down to resin concentrations ranging from 30 to 70% by weight. The hot alkyd transfer is usually accomplished in about 30 minutes. The vapors evolved during the transfer are condensed. The thin down tank is provided with coils for control of thin down temperature during the cutting operation.

After being thinned to the desired consistency, the resins are passed through a filter. The finished resin can then be cold blended with other materials. The storage tank that is referenced by this application is used to store a finished product. This finished product is an urethane alkyd resin. The movement of this resin from the mixing vessels into Tank T-904 will cause VOC emission and the daily storage of this resin will also cause VOC emission from the normal breathing losses. These VOC emissions are not vented to any control device and are therefore, uncontrolled.

#### **EMISSION CALCULATIONS:**

Operating Schedule:	Average	24 hrs/day	7 days/wk	52 wks/yr
	Maximum	24 hrs/day	7 days/wk	52 wks/yr

#### **Application No. 503614**

The increase of throughput from 25,000 gallons per month to 100,000 gallons per month will increase the monthly emission level from this storage tank. The daily emission will not change as long as the turnover rate per day does not exceed 1 per day.

The increase of the VOC concentration from 50 percent to 55% will increase the daily, monthly, and yearly VOC level for breathing loss and working loss.

The following calculation will determine the difference between the VOC emission level on a daily basis due to the increase in the VOC concentration for both the breathing and working loss compared to the pre modification VOC concentration. This calculation will be used to determine if the change in VOC emission is greater than 0.5 pounds per day for purposed of implementing BACT. To calculate the daily VOC emission increase the Tanks 4.09d program will be used. The data used for input into the Tanks 4.09d program is:

Data for Tanks 4.0.9d

Shell Height:	12 ft
Diameter	10 ft
Liquid Height	11 ft
Avg. Liquid Height	10 ft
Volume	6,715 gallons

<b><u>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</u></b>	<b><u>PAGES</u></b>	<b><u>PAGE</u></b>
	8	5
<b><u>ENGINEERING AND COMPLIANCE DIVISION</u></b>	<b><u>APPLICATION NO.</u></b>	<b><u>DATE</u></b>
	503614	2/9/10
<b><u>APPLICATION PROCESSING AND CALCULATIONS</u></b>	<b><u>ENGINEER</u></b>	<b><u>CHECK BY</u></b>
	DJG	

Turnovers 3.72  
Net throughput 25,000 gallons per month  
100,000 gallons per month

Monthly emission rate for the hottest day per year (August)

Working Loss = 1.0 lbs/month at 25,000 gallons per month throughput  
Breathing Loss = 0.08 lbs/month at 25,000 gallons per month throughput  
**TOTAL 1.08 lbs/month**

**Turnovers per month/6,715 gal capacity = 25,000/6,715 = 3.72**  
**Emission /turnover = 1.0 lbs/3.72 = 0.27 lbs/turnover**

Working Loss = 5.09 lbs/month at 100,000 gallons per month throughput  
Breathing Loss = 0.10 lbs/month at 100,000 gallons per month throughput  
**TOTAL 5.19 lbs/month**

**Turnovers per month/6,715 gal capacity = 100,000/6,715 = 15**  
**Emission/turnover = 5.09lbs/15 = 0.34 lbs/turnover**

The 30 day average can be calculated by dividing the above totals by 30 days. The result is:

**30 day Average** for 25,000 gallons per month =  $1.08/30 = 0.036 \text{ lbs/day}$

**30 day Average** for 100,000 gallons per month =  $5.19/30 = 0.173 \text{ lbs/day}$

The maximum daily emission is different from the 30 day average because the working loss emission can not be divided over 30 days since a turnover happens in one day not over several days. Therefore, assuming a maximum of one turnover per day and accounting the 5% increase in solvent concentration of the 100,000 gallon batch, the maximum daily emission is:

Pre Modification:  $(0.08 \text{ lbs/month}/30 \text{ days}) + 0.27 \text{ lbs} = 0.273 \text{ lbs/day}$

Post Modification:  $(0.10 \text{ lbs/month}/30 \text{ days}) + 0.34 \text{ lbs} = 0.343 \text{ lbs/day}$

**NET INCREASE**  $0.343 \text{ lbs} - 0.273 \text{ lbs} = 0.07 \text{ lbs/day}$

All of the TANKS 4.0.9d printouts for the 25,000 and 100,000 gallons per month, and the 300,000 and 600,000 gallons per year throughputs can be viewed in the Appendix.

<u>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</u>	<u>PAGES</u> 8	<u>PAGE</u> 6
<u>ENGINEERING AND COMPLIANCE DIVISION</u>	<u>APPLICATION NO.</u> 503614	<u>DATE</u> 2/9/10
<u>APPLICATION PROCESSING AND CALCULATIONS</u>	<u>ENGINEER</u> DJG	<u>CHECK BY</u>

## RULE EVALUATION:

**Rule 212:** Standards for Approving Permits –

- (c)(1) The closest school to this facility is Montebello Head Start located at 5745 Rickenbacker Rd, Commerce, CA which is 0.41 miles from the facility. The distance in feet is  $(0.41 \text{ mi}) \times (5,280 \text{ ft/mi}) = 2,165 \text{ feet}$ . Since this is **greater than 1,000 feet**, a public notice is not required. A map and printout of the closest K-12 schools near this location is shown in the Appendix.
- (c)(2) This facility will **NOT** have on-site emission increases exceeding any of the daily maximums specified in subdivision (g) of this rule. Those limits are:

Air Contaminant	Daily Maximum In lbs per Day
Volatile Organic Compounds	30
Nitrogen Oxides	40
PM10	30
Sulfur Dioxide	60
Carbon Monoxide	220
Lead	3

- (c)(3)(A)(i) This facility will NOT have an increase in emissions of toxic air contaminants

**Rule 402:** Public Nuisance –

A public nuisance is not expected from the loading of solvent into this storage tank. There have not been any reported nuisance complaints from the operation of the storage tank prior to the modification. The VOC emission will only be increased slightly on a monthly basis and the daily emission from this tank will not increase at all. Therefore, it is reasonable to believe that this modification will not cause a nuisance and compliance with this rule will be achieved.

**Rule 463:** Organic Liquid Storage –

Requirement: This rule applies to any above-ground stationary tank with a capacity of 75,000 liters (19,815 gallons) or greater used for storage of organic liquids, and any above-ground tank with a capacity between 950 liters (251 gallons) and 75,000 liters (19,815 gallons) used for storage of gasoline.

**The capacity of this storage tank is 6,715 gallons. This capacity is less than the requirement of this rule and therefore, this rule is not applicable to this storage tank.**

<u>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</u>	<u>PAGES</u> 8	<u>PAGE</u> 7
<u>ENGINEERING AND COMPLIANCE DIVISION</u>	<u>APPLICATION NO.</u> 503614	<u>DATE</u> 2/9/10
<u>APPLICATION PROCESSING AND CALCULATIONS</u>	<u>ENGINEER</u> DJG	<u>CHECK BY</u>

**REG XIII:** New Source Review

**RULE 1303 – REQUIREMENTS**

(a) Best Available Control Technology (BACT):

- (1) The Executive Officer or designee shall deny the Permit to Construct for any relocation or for any new or modified source which results in an emission increase of any nonattainment air contaminant, any ozone depleting compound, or ammonia, unless BACT is employed for the new or relocated source or for the actual modification to an existing source.

**The modification to this storage tank did NOT increase the “net” emission greater than 0.5 pounds per day and therefore, is not subject to the requirement of BACT review (per AQMD guidelines)**

(b) The Executive Officer or designee shall, except as Rule 1304 applies, deny the Permit to Construct for any new or modified source which results in a net emission increase of any nonattainment air contaminant at a facility, unless each of the following requirements is met:

(2) Emission Offsets

(A) Emission Reduction Credits

Unless exempt from offsets requirements pursuant to Rule 1304, emission increases shall be offset by either Emission Reduction Credits approved pursuant to Rule 1309, or by allocations from the Priority Reserve in accordance with the provisions of Rule 1309.1, or allocations from the Offset Budget in accordance with the provisions of Rule 1309.2. Offset ratios shall be 1.2-to-1.0 for Emission Reduction Credits and 1.0-to-1.0 for allocations from the Priority Reserve, except for facilities not located in the South Coast Air Basin (SOCAB), where the offset ratio for Emission Reduction Credits only shall be 1.2-to-1.0 for VOC, NOX, SOX and PM10 and 1.0-to-1.0 for CO.

**The modification to this storage tank did NOT increase the “net” emission greater than 0.5 pounds per day and therefore, is not considered an emission increase and is not subject to the offset requirement (per AQMD guidelines)**

<b><u>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</u></b>	<b><u>PAGES</u></b>	<b><u>PAGE</u></b>
	8	8
<b><u>ENGINEERING AND COMPLIANCE DIVISION</u></b>	<b><u>APPLICATION NO.</u></b>	<b><u>DATE</u></b>
	503614	2/9/10
<b><u>APPLICATION PROCESSING AND CALCULATIONS</u></b>	<b><u>ENGINEER</u></b>	<b><u>CHECK BY</u></b>
	DJG	

**Rule 1401**      **New Source Review Of Toxic Air Contaminants** - This rule specifies limits for maximum individual cancer risk (MICR), cancer burden, and non cancer acute and chronic hazard index (HI) from new permit units, relocations, or modifications to existing permit units which emit toxic air contaminants listed in Table I of this regulation.

**The materials stored in this storage tank do not contain any compounds that are listed in this rule. Therefore, this rule is NOT applicable to this modification.**

Reg XXX:      **TITLE V - NEW SOURCE REVIEW** - This facility is subject to the Title V Program because of the use of VOC containing compounds whose emission have exceeded threshold limits. A copy of the Annual Emission Report for year 2001 indicates that the company reported ROG emission greater than 10 tons (See Appendix). The modification to this equipment will NOT change any previous Title V monitoring and record keeping requirements. Compliance with their requirements is expected.

The modification to this equipment does qualify as a Minor Permit Revision and therefore requires that the Title V Permit is submitted to EPA for a 45 day notice. If no unfavorable comments are received from EPA, the permits will be approved and issued to the company.

## **CONCLUSIONS/RECOMMENDATIONS**

The evaluation of the following application and the request to increase the monthly and yearly throughput limit is expected to comply with all District Rules and Regulations. Permit conditions have been imposed to insure continued compliance with District Rules and Title V requirements is maintained as a result of the requested modification. A summary of the action is shown below:

**Application No. 503614**      Modification of Storage Tank T-904 by increasing the monthly and yearly throughput limits. **Recommend a Permit to Operate.**